

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**ATTORNEY DOCKET NO. 047071-0107**

Applicant: Harry A. ATWATER et al.

Title: WAFER BONDED VIRTUAL SUBSTRATE AND METHOD FOR FORMING THE SAME

Appl. No.: 10/761,918

Filing Date: 01/20/2004

Examiner: Unassigned

Art Unit: 1764

**INFORMATION DISCLOSURE STATEMENT**  
**UNDER 37 CFR §1.56**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Submitted herewith on Form PTO/SB/08 a listing of the documents cited by or submitted to the U.S. PTO in parent application Serial No. 10/125,133, filed April 17, 2002. As provided in 37 CFR §1.98(d), copies of the documents are not being provided since they were previously submitted to the United States Patent & Trademark Office in the above-identified parent application.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

**TIMING OF THE DISCLOSURE**

The listed documents are being submitted in compliance with 37 CFR §1.97(b), before the mailing date of the first Office Action on the merits.

**RELEVANCE OF EACH DOCUMENT**

The relevance of the documents is explained in the parent application.

Applicants respectfully request that any listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 CFR §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

Respectfully submitted,

By   
Leon Radomsky  
Attorney for Applicant  
Registration No. 43,445

Date January 6, 2005

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Date Submitted: 1/6/05

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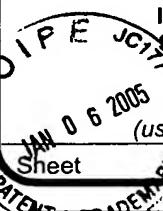
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<b>First Named Inventor</b>	Harry A. ATWATER et al.
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<b>Examiner Name</b>	Unassigned
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**U.S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
A1	5,882,987			SRIKRISHNAN	08/26/1997	
A2	6,150,239			GOESSELE et al.	09/30/1998	
A3	6,346,458			BOWER	12/30/1999	
A4	5,090,977			STRACK et al.	02/25/1992	
A5	4,499,327			KAISER	02/12/1985	
A6	6,121,504			KUECHLER et al.	09/19/2000	
A7	4,474,647			ASSELINEAU et al.	10/02/1984	
A8	5,720,929			MINKKINEN et al.	02/24/1998	
A9	5,914,433			MARKER	06/22/1999	
A10	5,609,734			STREICHER et al.	03/11/1997	
A11	5,336,841			ADAMS	08/09/1994	
A12	6,465,327			ASPAR et al.	10/15/2002	
A13	5,374,564			BRUEL	12/20/1994	
A14	5,877,070			GOESELE et al.	03/02/1999	
A65	6,504,091			HISAMATSU et al.	1/2003	
A66	5,231,047			OVSHINSKY et al.	7/1993	

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A15	EP	0 060 103				04/17/1985		
A16	WO	01/03172				01/11/2001		

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A17		CURTIS et al., "Integration of the UOP/HYDRO MTO Process into Ethylene Plants," 10 <sup>th</sup> Ethylene Producers' Conference, 1998, pp. 54-85	
A18		BETT et al., III-V Compounds for Solar Cell Applications, Appl. Phys. A, 1999, pp. 119-129, Vol. 69, Springer-Verlag (published online: 24 June 1999)	
A19		BRUEL et al., Smart-Cut: A New Silicon On Insulator Material Technology Based on Hydrogen Implantation and Wafer Bonding, March 1997, pp. 1636-1641, Vol. 36, Jpn. J. Appl. Phys	

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	A20	CHENG et al., Electron Mobility Enhancement in Strained-Si n-MOSFETs Fabricated on SiGe-on-Insulator (SGOI) Substrates, IEEE Electron Device Letters, July 2001, pp. 321-323, Vol. 22, No. 7	
	A21	DOBACZEWSKI et al., Donor Level of Bond-Center Hydrogen in Germanium, Physical Review B, 2004, pp. 245207-1-6, Vol. 69	
	A22	GEORGAKILAS et al., Wafer-scale Integration of GaAs Optoelectronic Devices with Standard Si Integrated Circuits Using a Low-Temperature Bonding Procedure, Applied Physics Letters, Dec. 2002, pp. 5099-5101, Vol. 81, No. 27, American Institute of Physics [Downloaded 19 Oct. 2004]	
	A23	GÖSELE et al., Fundamental Issues in Wafer Bonding, J. Vac. Sci. Technol. A, Jul/Aug 1999, pp. 1145-1152, Vol. 17(4), American Vacuum Society	
	A24	GÖSELE et al., Semiconductor Wafer Bonding. Annu. Rev. Mater. Sci., 1998, pp. 215-241, Vol. 28	
	A25	HUANG et al., SiGe-on-Insulator Prepared by Wafer Bonding and Layer Transfer for High-Performance Field-Effect Transistors, Applied Physics Letters, Feb. 2001, pp. 1267-1269, Vol. 78, No. 9, American Institute of Physics	
	A26	TONG et al., "Layer Splitting Process in Hydrogen-Implanted Si, Ge, SiC, and Diamond Substrates," Appl. Phys. Lett., Vol. 70, No. 11, March 17, 1997, pp. 1390-1392.	
	A27	HUANG et al., Electron and Hole Mobility Enhancement in Strained SOI by Wafer Bonding, IEEE Transactions on Electron Devices, Sept. 2002, pp. 1566-1571, Vol. 49, No. 9	

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Sheet 3 of 7

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	A28	LANGDO et al., Strained Si on Insulator Technology: From Materials to Devices, Solid-State Electronics, 2004, pp. 1357-1367, Vol. 48, Elsevier Ltd.	
	A29	LEROY et al., Controlled Surface Nanopatterning with Buried Dislocation Arrays, Surface Science, 2003, pp. 211-219, Vol. 545, Elsevier B.V.	
	A30	MA et al., Solid-State Reaction-Mediated Low-Temperature Bonding of GaAs and InP Wafers to Si Substrates, Appl. Phys. Lett., Feb. 1994, pp. 772-774, Vol. 64, No. 6, American Institute of Physics	
	A31	MALEVILLE et al., Smart-Cut® Technology: From 300 mm Ultrathin SOI Production to Advanced Engineered Substrates, Solid-State Electronics, 2004, pp. 1055-1063, Vol. 48, Elsevier Ltd.	
	A32	MORRAL et al., InGaAs/InP Double Heterostructures on InP/Si Templates Fabricated by Wafer Bonding and Hydrogen-Induced Exfoliation, Applied Physics Letters, Dec. 2003, pp. 5413-5415, Vol. 83, No. 26, American Institute of Physics	
	A33	TONG et al., Wafer Bonding and Layer Splitting for Microsystems, Adv. Mater., 1999, pp. 1409-1425, Vol. 11, No. 17, Wiley-VCH Verlag GmbH	
	A34	TONG et al., Layer Splitting Process in Hydrogen-Implanted Si, Ge, SiC, and Diamond Substrates, Appl. Phys. Letter, Mar. 1997, pp. 1390-1392, Vol. 70, No. 11, American Institute of Physics	
	A35	TONG et al., Hydrophobic Silicon Wafer Bonding, Appl. Phys. Lett., Jan. 1994, pp. 625-627, Vol. 64, No. 5, American Institute of Physics	

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	A36	TONG et al., A "Smarter-Cut" Approach to Low Temperature Silicon Layer Transfer, Appl. Phys. Lett., Jan. 1998, pp. 49-51, Vol. 72, No. 1, American Institute of Physics	
	A37	ZAHLER et al., Ge Layer Transfer to Si for Photovoltaic Applications, Thin Solid Films, 2002, pp. 558-562, Vol. 403-404, Elsevier Science B.V.	
	A38	ZAHLER et al., Wafer Bonding and Layer Transfer Processes for 4-Junction High Efficiency Solar Cells, 29 <sup>th</sup> IEEE Photovoltaic Specialists Conference, New Orleans, USA, (05/2002)	
	A39	AUBERTON-HERVÉ et al., Smart-Cut®: The Basic Fabrication Process for UNIBOND® SOI Wafers, IEICE Trans. Electron, Mar. 1997, pp. 358-363, Vol. E80-C, No. 3, The Institute of Electronics, Information and Communication Engineers	
	A40	TRACY et al., Germanium-on-Insulator Substrates by Wafer Bonding, Journal of Electronic Materials, 2004, pp- 886-892, Vol. 33, No. 8	
	A41	ZAHLER et al., J. Electron Mater., 33(8), (2004), pp. 22-23, (Abstracts K2 and K3)	
	A42	AKATSU et al., Wafer Bonding of Different III-V Compound Semiconductors by Atomic Hydrogen Surface Cleaning, Journal of Applied Physics, Oct. 2001, pp. 3856-3862, Vol. 90, No. 8, American Institute of Physics	
	A43	BRUEL M., Silicon on Insulator Material Technology, Electronics Letters, July 1995, pp. 1201-1202, Vol. 31, No. 14	

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	A44	BRUEL M., Application of Hydrogen Ion Beams to Silicon on Insulator Material Technology, Nuclear Instruments and Methods in Physics Research B, 1996, pp. 313-319, Vol. 108, Elsevier Science B.V.	
	A45	KIM et al., Heterogeneous Silicon Integration by Ultra-High Vacuum Wafer Bonding, Journal of Electronic Materials, 2003, pp. 849-854, Vol. 32, No. 8	
	A46	LAGNADO et al., Integration of Si and SiGe with Al <sub>2</sub> O <sub>3</sub> (sapphire), Microelectronic Engineering, 2001, pp. 455-459, Vol. 59, Elsevier Science B.V.	
	A47	TARASCHI et al., Strained Si, SiGe, and Ge On-Insulator: Review of Wafer Bonding Fabrication Techniques, Solid-State Electronics, 2004, pp. 1297-1305, Vol. 48, Elsevier Ltd.	
	A48	WIEGAND et al., Wafer Bonding of Silicon Wafers Covered with Various Surface Layers, Sensors and Actuators, 2000, pp. 91-95, Vol. 86, Elsevier Science B.V.	
	A49	YAMAGUCHI M., Multi-Junction Solar Cells and Novel Structures for Solar Cell Applications, Physica E, 2002, pp. 84-90, Vol. 14, Elsevier Science B.V.	
	A50	ZAHLER et al., Wafer Bonded Ge/Si Heterostructures for Photovoltaic Applications, Presentation, MRS 2002 Fall Meeting, 16 pages, (11/2002)	
	A51	ZAHLER et al., Wafer Bonded Ge/Si Heterostructures for Photovoltaic Applications, (Presentation), Electronic Materials Conference 2002, 16 pages	

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	A52	ZAHLER et al., Wafer Bonded Ge/Si Heterostructures for Photovoltaic Applications, (Abstract and Presentation), MRS 2002 Spring Meeting (04/2002)	
	A53	ZAHLER J.M., Materials Integration by Wafer Bonding and Layer Transfer, (Presentation), 13 pages, MRS 2004 Spring Meeting (04/2004)	
	A54	ZAHLER et al., The Role of H in the H-Induced Exfoliation of GE Films, (Abstract and Presentation), MRS 2004 Spring Meeting, 16 pages (04/2004)	
	A55	ZAHLER et al., Wafer Bonded Epitaxial Templates for GaAs/Si Heterostructures, (Abstract and Presentation), MRS 2003 Spring Meeting, 16 pages, (04/2003)	
	A56	ZAHLER et al., Wafer Bonded Epitaxial Templates for GaAs/Si and InP/Si Heterostructures, (Presentation), MRS 2003 Fall Meeting, 15 pages, (11/2003)	
	A57	ZAHLER et al., Wafer Bonding Processes for Ultrahigh Efficiency Photovoltaic Applications, (Abstract and Presentation), MRS 2001 Fall Meeting, (11/2001)	
	A58	ZAHLER et al., GE Layer Transfer to Si for Photovoltaic Applications, (Presentation), 14 pages, MRS 2001 Spring Conference, (04/2001)	
	A59	ZAHLER et al., Wafer Bonding and Layer Transfer Processes for A 4-Junction Solar Cell, (Presentation) 29 <sup>th</sup> IEEE Photovoltaic Specialists Conference, New Orleans, USA, (05/2002)	

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Date Submitted: 1/6/05				<b>Filing Date</b>	01/20/2004
(use as many sheets as necessary)				<b>First Named Inventor</b>	Harry A. ATWATER et al.
Sheet	7	of	7	<b>Group Art Unit</b>	1764
				<b>Examiner Name</b>	Unassigned
				<b>Attorney Docket Number</b>	047071-0107

### U.S. PATENT DOCUMENTS

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	A60	ZAHLER et al., Ge/Si Wafer Bonded Epitaxial Templates for GaAs/Si Heterostructures, (Abstract), MRS 2002 Fall Meeting, (11/2002)	
	A61	MORRAL et al., Bonding and Layer Transfer Process of InP on Silicon for the Elaboration of the Bottom Double Heterostructure of 4-Junction High Efficiency Solar Cells, (Abstract), MRS 2002 Fall Meeting, (11/2002)	
	A62	MORRAL et al., Assessment of Optical and Structural Properties of III-V Semiconductors Grown on InP/Si and Ge/Si Wafer Bonded Epitaxial Templates with Application to a Four-Junction Solar Cell, (Abstract), MRS 2003 Spring Meeting, (04/2003)	
	A63	MORRAL et al., Electrical and Structural Characterization of the Interface of Wafer Bonded InP/Si, MRS 2003 Spring Meeting, (04/2003)	
	A64	MORRAL et al., The Role of Hydrogen in H-Induced Exfoliation and Layer Transfer on InP, (Abstract), MRS 2004 Spring Meeting, (04/2004)	

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